NAVSEA
STANDARD ITEM

FY-04

ITEM NO: 009-63
DATE: ***30 AUG 2002***
CATEGORY: II

1. SCOPE:

1.1 Title: Lubricating Oils and Hydraulic Fluids; analyze

2. REFERENCES:

2.1 S9086-H7-STM-010/CH-262, Lubricating Oils, Greases, Specialty Lubricants, and Lubrication Systems

2.2 S9086-S4-STM-010/CH-556, Hydraulic Equipment (Power Transmission and Control)

2.3 S9086-HB-STM-010/CH-233, Diesel Engines

3. REQUIREMENTS:

3.1 Accomplish tests of each sample in accordance with the specified test methods of Table One or Table 2 of this item.

3.1.1 Test selections shall be based on the sample type and service.

3.2 Determine whether water present in each sample is fresh or salt water.

3.2.1 Measure and record salinity content in parts per million (ppm).

3.3 Accomplish a spectrographic analysis of each sample, recording and reporting the concentration of the following elements in ppm with the indicated degree of accuracy:

IRON	COPPER	TIN	MAGNESIUM	LEAD
ALUMINUM	SILVER	CHROMIUM	NICKEL	SILICON

3.3.1 The sensitivity and reliability of the equipment used for the test shall be that the standard deviation obtained in the analysis for each specified element shall not exceed the appropriate value in the following table:

ELEMENT CONCENTRATION IN STANDARD REFERENCE SPECIMEN (RANGE IN PPM)	STANDARD DEVIATION (MAXIMUM IN PPM)
3-9	1.5
10-19	2
20-49	3
50-99	5
100-199	8
200-500	15

3.4 Accomplish specific gravity test for each MIL-H-19457 sample and determine hydrocarbon oil content.

3.5 Accomplish specific gravity and ignition test for each MIL-H-22072 sample and determine high temperature stability after 168 hours at 158, plus or minus two degrees Fahrenheit.

3.6 Submit ***one*** legible cop***y, in hard copy or electronic media,*** of a report listing completed test results of 3.1 through 3.5 for each sample to the SUPERVISOR.

3.6.1 Reports shall be submitted within 48 hours after the qualified chemical laboratory receives each sample.

3.6.2 Reports shall include recommendations for continued use, disposal, or resampling of each tested oil or fluid sample.

3.7 Use Table 262-4-1 of 2.***1*** and Table 556-8-1 of 2.***2*** for guidance for test accept and reject criteria for each in-service sample.

3.7.1 Use Table 233-8-2 of 2.***3*** for test accept and reject criteria for 9000 Series lube oil.

3.8 Use the applicable Military Specification for accept and reject criteria of each sample from new fluids and oils.

4. NOTES:

4.1 Ship’s Force will identify (MIL-SPEC) specification for each sample from in-service sources.

TABLE ONE

SHIPBOARD LUBRICATING OILS

ASTM TEST METHOD	AGMA-250.04 MS-6135	MIL-PRF-17672 MS-2075-TH MS-2110-TH MS-2135-TH	MIL-PRF-17331 MS-2190-TEP	MIL-PRF-2105	MIL-PRF-9000 9250	MIL-H-19457	MIL-PRF-23699	VV-L-825
FLASH POINT DEG C (DEG F) D92						X		
PERCENT WATER D95	X	X	X			X		X
VISCOSITY CS @ ***40*** DEG. C ***(104 DEG. F) and*** 100 DEG. ***C (212 DEG. F)*** D445					X		X	
ACID NO. D974	X	X	X			X	X	X
PRECIPITATION NO. D91		X	X	X				
ASH D482	X							
TOTAL BASE NO. D664 (TEST KIT)					X			

X -- IDENTIFIES EACH TEST REQUIRED FOR EACH FLUID TYPE

TABLE 2
HYDRAULIC FLUIDS

ASTM TEST METHOD	MIL-DTL-17111	MIL-H-19457	MIL-PRF-17672	MIL-PRF-17331 MS-2190-TEP	MIL-H-22072
FLASH POINT DEG. C (DEG. F) D92	X	X			X
PERCENT WATER D95		X			X
VISCOSITY CS @ ***40*** DEG. C ***(***104 DEG.F***)*** ***and 100 DEG. C (212 DEG. F)*** ASTM D445	X		X	X	
PERCENT WATER D1744	X		X	X	
NEUTRALIZATION NO. MAX. ASTM D974	X		X	X	
PARTICLE COUNT NAS CLASS 9 MAX	X	X	X	X	X

X -- IDENTIFIES EACH TEST REQUIRED FOR EACH FLUID TYPE